

Patent claims:

1. Method for analysis of an object in microlithography, comprising the steps of:

providing an aerial image measurement system (AIMS) that consists of at least two imaging steps;

detecting the image output of the AIMS;

employing a correction filter to correct the detected image with respect to the transfer behavior of the second or other imaging steps.

2. The method according to claim 1, further comprising the step of illuminating the object with incident light.

3. The method according to claim 1, further comprising the step of illuminating the object with transmitted light.

4. The method according to claim 1, wherein the image output contains output variables and the correction by the correction filter is carried out in such a way that the corrected output variables of the image correspond to a photolithography stepper or scanner.

5. The method according to claim 1, whereby the correction is carried out by an involution.

6. The method according to claim 1, whereby measured correction values are used for the correction.

7. The method according to claim 1, whereby calculated correction values are used for the correction.

7. The method according to claim 1, whereby the correction is carried out using an electronic circuit by means of an analog or digital filter or an algorithmic correction by means of software in a digital computer.

8. The method according to claim 1, wherein the object is a mask for manufacturing semiconductors.

9. An apparatus for analysis of an object in microlithography, the apparatus comprising:

an aerial image measurement system (AIMS) that consists of at least first and second imaging devices;

means for detecting the image output of the AIMS; and

a correction filter for correcting the detected image with respect to the transfer behavior of all of the imaging devices other than the first imaging device.

10. The apparatus of claim 9, wherein the first imaging device is selected from the group consisting of EUV imaging optics with mirrors; EUV imaging optics with zone plates; X-ray imaging optics with mirrors; X-ray imaging optics with zone plates and UV imaging optics with diffractive optics.

11. The apparatus of claim 9, wherein the imaging devices other than the first imaging device are selected from the group consisting of UV imaging optics with diffractive optics; VIS imaging optics with diffractive optics; electron microscope; image converter; converter of photons into electrons; fiber optics; camera; micro-lens array on camera or scintillator; and amplifier elements.